**Chapter 5 Learning Guide Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Vocabulary**

Electron configuration -

Pauli exclusion principle -

Hund’s rule -

Atomic orbital -

Atomic emission spectrum -

Electromagnetic radiation -

**Draw and label** a picture that **explains** how atoms can both absorb and emit light at certain distinct frequencies (colors).

**Using a diagram**, **explain** why the 4s orbital fills before the 3d orbitals.

**Draw** the 1s and 2s orbitals and their relative sizes. **Draw** the 3 different p orbitals and show how they are arranged.

**Learning Check**

How many orbitals are in each of the 4 subshells? (s, p, d, f)

Write the electron configuration for Titanium. What is its highest energy level?

What do the noble gases have in common?

Why is Helium placed above Neon instead of Beryllium on the periodic table?

**Make Connections** – **Relate** a concept to something from your world!

Electron orbitals are like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because…

Electrons are like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because…

Atomic emission spectra are like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because…

**Questions** – Write 3 questions about this chapter to quiz your classmates.

1)

2)

3)  
  
**Standards**  
 “SC1e: Construct an explanation of light emission and the movement of electrons to identify elements.”

**Explain** how knowledge of atomic emission spectra and electron configuration helps us to identify elements.

**Electron Dot Structure**

**Define** valence electrons:

**Draw** electron dot structures for Lithium, Carbon, Nitrogen, and Neon